

MON2-3W

MON2-3/6.8

3U Dual LCD Video Monitors

Document P/N 821525 Rev-E

User Manual

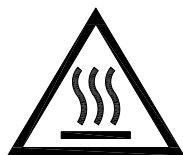
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Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched, particularly at plugs convenience receptacles and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15) Do not expose this apparatus to rain or moisture.
- 16) The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

CAUTION!



In products featuring an audio amplifier and speakers, the surface at the side of the unit, where the audio amplifier heat sink is internally attached, may get very hot after extended operation. When operating the unit exercise caution when touching this surface and ensure that external materials which may be adversely affected by heat are not in contact with it. There is a Hot Surface label (see diagram) attached to the aforementioned surface of the product.

Introduction

Congratulations on your selection of a PANORAMAdtv product. We are confident it represents the best performance and value available, and we guarantee your satisfaction with it.

If you have questions or comments you may contact us at:

Wohler Technologies, Inc.

31055 Huntwood Avenue

Hayward, CA 94544

Phone: (510) 870-0810 Fax: (510) 870-0811

US Toll-Free: 1-888-596-4537

www.panoramadt.com **sales@panoramadt.com**

Section 1

General Features and Specifications

Description

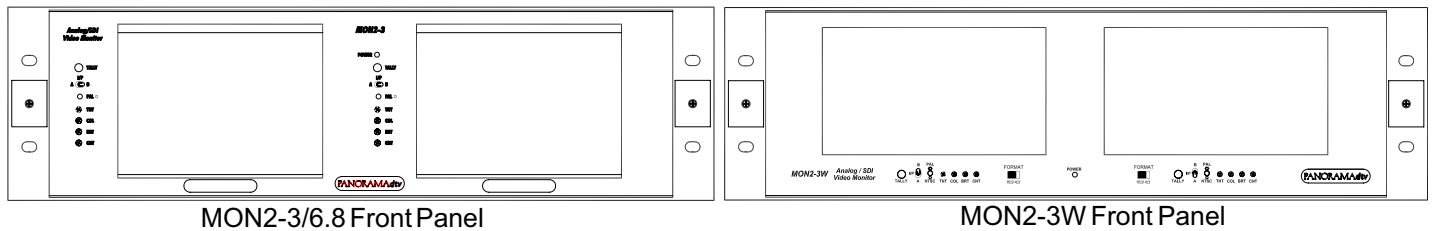
Features

Applications

Specifications

Options

MON2-3/6.8 and MON2-3W Dual LCD Video Monitors



Description

The **MON2-3/6.8** and **MON2-3W** are 3U rack size, dual LCD color video monitors. The **MON2-3/6.8** features two standard format 6.8" (diagonal) LCD monitors, while the **MON2-3W** features two special wide format 7" (diagonal) LCD video monitors.

Each LCD is back lit with a cold cathode fluorescent tube. The LCDs can display standard NTSC or PAL analog video signals and automatically detects and indicates the presence of these signals with a front panel LED indicator. Each LCD display has independent rear panel power and input termination switches for complete unit flexibility. Each LCD display has its own front panel trim pot controls for color, tint/hue, contrast and brightness. The **MON2-3/6.8** screens display a 4:3 aspect ratio while the **MON2-3W** screens display 16:9, 4:3 or 4:3 intelligently stretched with front panel selection. The LCD's are mounted in a rotatable cylinder to provide optimum operator viewing angles, which allows you to rotate the display array approximately $\pm 30^\circ$ in the vertical plane. Power indication is a front panel LED.

The standard versions feature two composite video inputs. Each BNC composite video input has a passive loop-through and a 75 ohm termination switch. An optional second analog video input (Analog B Board) can be specified for each video monitor when ordering a **MON2-3** unit. These optional field-installable additional composite video inputs (with passive loop-through) are selected with an A/B switch on the front panel.

SMPTE 259M/EBU601 serial digital inputs (SDI) are displayed with installation of the MSDI-4 SDI option. Each optional SDI module provides an SDI video input channel with a reclocked SDI video output and a converted composite video output. The SDI Modules also offer SMPTE color bars with a rear panel switch. These optional SDI modules (one per LCD screen) are field-installable.

A DB-25 connector on the rear panel can be interfaced to most tally systems and there are built-in dual-color (red/green) LEDs on the front panel for tally indication.

Features

- MON2-3/6.8 features Dual 6.8" (4:3) LCD Color Video Monitor. MON2-3W features Dual 7" (16:9) LCD Color Video Monitors.
- Adjustable Screen Angle for Efficient Viewing
- MON2-3W Aspect Ratio is Selectable from 16:9, 4:3, and 4:3 intelligently stretched
- Two Composite Video Inputs with Loop-throughs
- Optional Additional Composite Video Inputs for A/B Switching
- Optional (Field Installable) SDI Input Module With reclocked SDI and Converted Analog Outputs
- Front Panel Trim Pot Control for Color, Tint/Hue, Contrast And Brightness
- NTSC/PAL Auto-Sensing and Indication LED
- Red/Green Tally Light for each monitor
- Low Power Consumption
- Power Indication LED
- Internal Universal AC Mains Power Supply
- Compact 3U, 9" Deep and Lightweight

Applications

The MON2-3W and MON2-3/6.8 are ideally suited for monitoring of multiple video feeds in VTR bays, mobile production vehicles, news and transmission control rooms, and duplication and post production applications. Designed and manufactured in the U.S., the MON2-3W and MON2-3/6.8 are backed by a strong warranty and a satisfaction guaranteed return policy.

Specifications

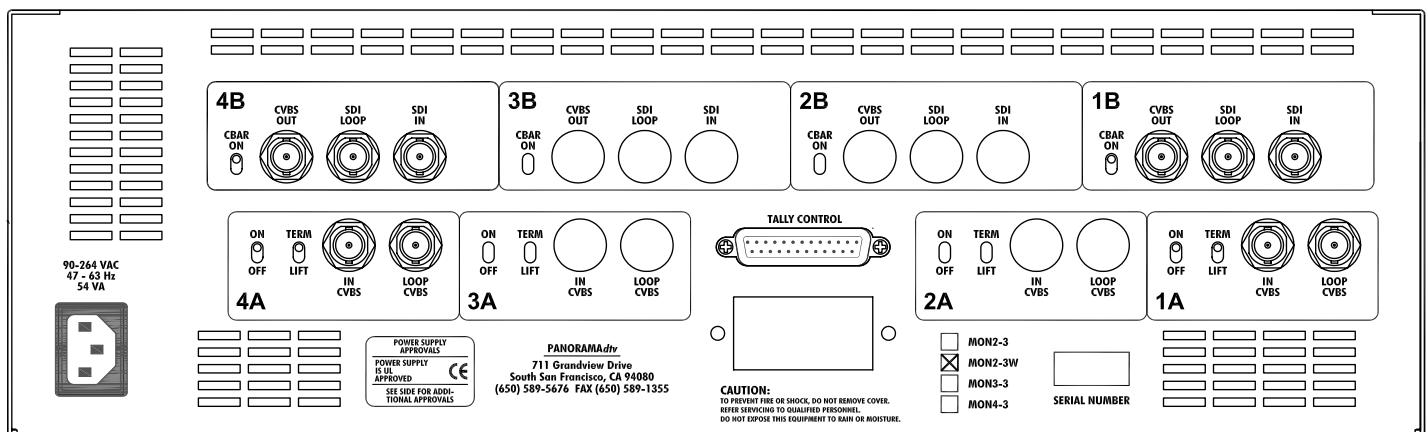
Screen Type:	LCD, active matrix	Video Signal:	NTSC 525/60 or PAL 625/50
Back Light:	Cold cathode fluorescent tube (25,000 min. average hours)	Controls:	Auto-sensing, Analog and/or SDI, Color, Tint/Hue, Brightness, and Contrast (W Only: 16:9 or 4:3 Format)
Screen Size:	6.8: 6.8 inches diagonal W: 7 inches diagonal	Indicators:	Power LED, Display Tally LEDs 1 and 2, PAL/NTSC LEDs 1 and 2
Aspect Ratio:	6.8: 4:3 W: 4:3, 16:9	Connectors: (Standard Unit)	Selectable 75 Ω termination on BNC Analog Video Input = 2 x BNC Analog Video Loop-thru = 2 x BNC AC Power = IEC-320 Tally = Dsub 25-pin Female
Picture Elements:	6.8: 1152 (Horiz.) x 234 (Vert.) W: 1440 (Horiz.) x 234 (Vert.)	Operating Temp:	0 to +40 degrees Celcius
Dot Pitch:	6.8: 0.120 (Wide) x 0.442 (High) W: 0.107 (Wide) x 0.370 (High)	Dimensions: (H x W x D)	19 inch Rack Mounting (EIA-310D) 5.25 x 19 x 7.125 inches (133 x 483 x 181 mm)
LCD Active Area:	6.8: 138.2 mm x 103.4 mm W: 154.1 mm x 88.6 mm	Weight:	6.8: 11 lbs. (5 kg) W: 11.3 lbs. (5.1 kg)
Color Configuration:	RGB Stripe	Power Usage:	19 W
Contast Ratio:	150 (typical)	Power Supply:	100 to 240 VAC, 50/60 Hz, CE/UL Universal Input Power Supply
Brightness:	400 NITs (cd/m ²)		
Viewing Angle:	Top=60', Bottom=30', Right/Left=30'		

Options

Additional input SDI Modules: MSDI-4 - one per channel

Additional input Composite Analog modules: MAV-1 - one per channel

Note: Each channel can accept only one additional input board option; either SDI or Composite Analog.



**MON2-3/6.8 and MON2-3W Rear Panel
(shown with two SDI [MSDI-4] options installed)**

Units are certified to meet, at time of manufacture, all currently applicable product safety and EMC requirements, such as those of CE. Features and specifications subject to improvement without notice.

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Section 2

Operation

Installation

Front Panel Features

Rear Panel Features

Installation

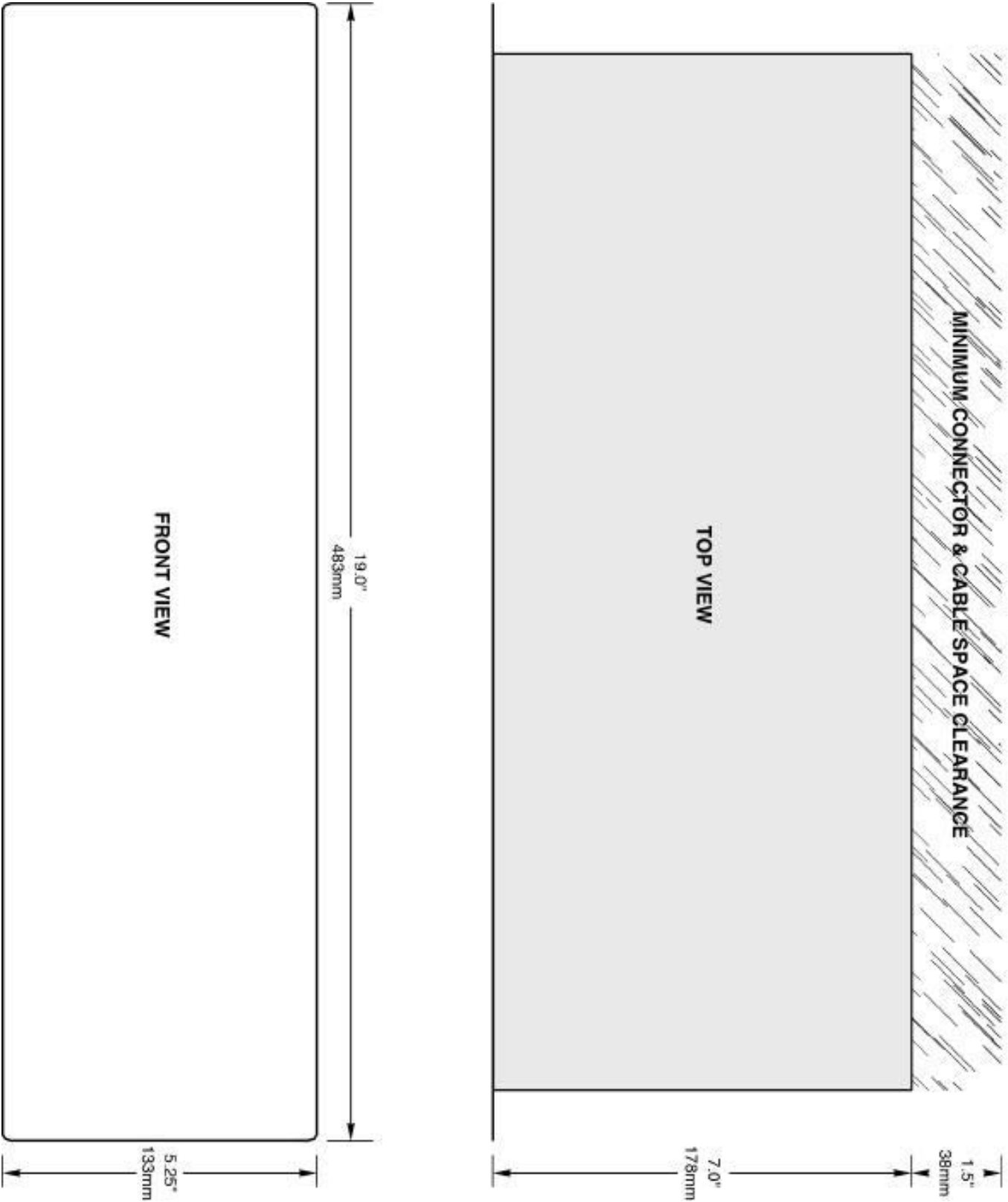


Figure 2-a: MON2-3/6.8 and MON2-3W Chassis Dimensions

Installation

Unpacking

Unpack the unit from the shipping container and inspect all articles for shipping damage. If you find any damage, notify the shipping carrier immediately for claims adjustments. Compare the shipping box contents to the packing slip. Contact PANORAMAdtv sales representative if there are any unexplained shortages.

Power Requirements

The MON2-3W and MON2-3/6.8 are equipped with a world standard power supply that is capable of operating on 90-264 VAC @ 50-60 Hz. Power consumption is 60 watts, maximum.

Power Supply LED Indication: The green Power LED at the center of the front panel glows green to indicate the unit is connected to mains power and an operating voltage is present. Individual displays are turned on or off from their respective ON/OFF switches located on the unit rear.

Cooling and Airflow

No special physical mounting considerations are necessary regarding unit heat dissipation except under adverse conditions. Provided the ambient temperature inside the mounting enclosure does not exceed 40 degrees Celsius (104 degrees Fahrenheit), adjacent devices can be rack mounted (or stacked) in proximity to the MON unit. If the above temperature is exceeded, allow a 1RU (1.75"/25mm) space above and below the unit for air circulation.

Rack Mounting

The MON2-3W and MON2-3/6.8 rack mount in a standard EIA-310-D specification 19"/483 mm rack and need 3RU (5.25"/133 mm) of space. (See Figure-2a for unit dimensions.) Allow sufficient space at the unit rear for connector and cable clearance (approximately 4"/102 mm). Each unit weighs approximately 11 pounds (5 kg) and rack mounts from the front panel support rails. Rear support is not required.

LCD Monitor Viewing Position: To obtain the best operator's viewing angle, mount these units as nearly "straight on" to the operator's position as possible (0 degrees left/right or up/down). Good image quality is assured if viewing angles are between +/- 45 degrees from the center axis in the horizontal plane (left/right). In the vertical axis, good image quality is obtained between 10 degrees looking down and 30 degrees looking up. The displays are mounted in a rotating cylinder that allows you to adjust the display angle +/- 30 degrees to provide optimum operator viewing angles. Due to the nature of LCD's, there are certain anomalies, which can cause the displayed video to appear incorrect. If the viewer is outside the optimal LCD display viewing range, the contrast ratio, brightness, and color saturation will not be or may not appear to be, a true representation of the displayed video. Additional anomalies such as loss of resolution, apparent reversed video effect, and frame/field strobe effect with the CCFT backlight may also be observed. The LCD used in these units is optimized for viewing from the 12 o'clock position. That is from approximately eye height and upwards. Typically, these monitors are mounted at or above eye height and viewed by looking upwards into the display. Going beyond the specified viewing area can cause anomalies as mentioned, above.

NOTE: In PAL mode operation, the LCD driver discards every seventh line of active video so an entire video frame fits within the display screen. This is normal with most LCD's currently on the market.

General Installation Recommendations

EMI Interference: To ensure EMI interference is kept to a minimum, terminate all unused connectors.

Recommended Cables: Recommended cable type for Analog or SDI signals is: **Belden 1694A**.

Static Discharge: As with most electronic equipment, static discharges can damage components within the unit. Take precautions to ensure your installation environment is not subject to static discharges.

Front Panel Features

Please refer to Figure-2b on the following page to familiarize yourself with the front panel features of the MON unit. The following sections describe these features and are referenced, by number, to Figure-2b.

1 **Power Indication - Green LED**

The Power Indicator glows green when mains power is connected to the MON2-3 unit. Individual display power switches (Item E, page 12), located on the rear panel, control the on/off operation of each of the two associated displays.

2 **LCD Video Monitor - TFT Screen**

View input video sources here. Select source inputs by setting the Input (I/P) Selector Switch (Item 5) to the desired input. Screen image parameters are adjustable by four manual controls (Item 3).

2a Mon2-3/6.8 LCD Video Monitor - Active matrix TFT, 6.8" diagonal (4:3 aspect ratio).

2a Mon2-3W LCD Video Monitor - Active Matrix TFT, 7" diagonal (4:3 or 16:9 aspect ratio).

3 **LCD Video Monitor Display Controls - Rotary Trim Pots**

Each LCD video monitor can be adjusted separately using these four image controls:

- **TNT - Tint**; adjust for desired image color hue (NTSC only).
- **COL - Color Saturation**; adjust for desired amount of image color saturation.
- **BRT - Brightness**; adjust for desired screen brightness.
- **CNT - Contrast**; Adjust for desired image scene dark-to-bright contrast.

4 **PAL/NTSC Indication - Yellow LED**

This indicator shows the detected signal type connected to the CVBS input connector. This LED glows yellow to indicate a PAL encoded signal is connected. This LED remains dark to indicate an NTSC signal is connected.

5 **Input (I/P) Selection - 2-Position Toggle Switch**

This switch selects between the primary analog composite video (CVBS) and optional SDI digital *or* optional second composite analog video input signals connected to the rear panel. (SDI sources require the MSDI-4 SDI option.) The Input (I/P) Selector Switch selects these signals according to the following switch positions:

- **UP (B)**: SDI digital signal *or* second composite analog signal (Remote Select disabled).
- **DOWN (A)**: Primary CVBS analog composite signal. (Remote Select enabled.)

6 **Tally Indication - Tri-color LED**

This bi-color LED can glow red, green, or yellow to indicate tally status associated with the signal displayed. Refer to page 18 for tally connection details.

7 **Aspect Ratio (Format) Selection - 2-Position Slide Switch (MON2-3W Only)**

This switch selects the aspect ratio (format) of the respective video source being monitored. There is one switch for each LCD video monitor screen. Aspect ratios of 4:3 (standard) or 16:9 (wide) are selectable. Inappropriate format selection will result in distortion of the video image as seen on the associated video monitor screen(s) of the MON2-3W.



Rear Panel Features

Please refer to Figure-2c on the following page to familiarize yourself with the rear panel features of the MON unit. The following sections describe these features and are referenced, by letter, to Figure-2c.

Notes:

- 1) Items F, G, H, and I apply only to units configured with the MSDI-4 SDI option (factory or field installed).
- 2) Due to the modular nature of the rear panel, not all openings are populated depending on the model or options installed. All unused openings will be mechanically secured with appropriate blank panels and/or hole plugs.
- 4) Only one additional input option module (SDI digital or CVBS analog) can be accommodated per monitor channel. The I/P switch (Item 5) on the front panel will then be used to switch between the standard primary CVBS input and whichever optional input module is installed for that channel.

A Power - IEC-320 Connector

Attach a standard IEC-320 power cord between this connector and mains power. The front panel Power LED (Item 1) will glow green to indicate that an operating voltage is present.

B In CVBS - BNC Connector

Connect analog CVBS video signals here. NTSC or PAL standards are accommodated automatically.

NOTE: Use the front panel Input (I/P) Selector Switch (Item 5) to select analog or option inputs: To select a CVBS source place the Input Selector Switch in the **DOWN (A)** position. This switch position also enables input video selections from the Remote Source Select Control connector, if installed.

C Loop CVBS - BNC Female Connector

Signal-through connections to down-stream equipment are supplied here. If you supply down-stream equipment from this connector, ensure you set the TERM/LIFT toggle switch (Item D) to the LIFT (DOWN) position. If **no** other equipment is connected via this connector, set the TERM/LIFT switch to the TERM (UP) position.

D Term/Lift - 2-Position Toggle Switch

This switch terminates the “IN CVBS” connector as required by your configuration. Placing this switch to the TERM (UP) position inserts a 75 Ω termination impedance in the video signal. This is the required position for correct signal levels when down-stream equipment is **not** connected to the “LOOP CVBS” connector (Item C).

E On/Off - 2-Position Toggle Switch

Individual monitor power switch. Use this switch to turn the power on or off to the associated monitor.

F SDI In - BNC Female Connector (MSDI-4 SDI Option)

Connect SMPTE 259M/EBU601 SDI signals here. This female BNC connector is terminated at 75 Ω . (MSDI-4 SDI option required.)

NOTE: Use the front panel Input (I/P) Selector Switch (Item 5) to select analog or digital inputs: To select an SDI source place the Input Selector Switch in the UP (B) position. Placing the Input Selector Switch in this position will disable source selections via the Remote Source Select Switch, if installed.

G SDI Loop - BNC Female Connector (MSDI-4 SDI Option)

Signal through connections to down-stream equipment are supplied here. This connector supplies a buffered replica of the input signal. (MSDI-4 SDI option required.)

(Continued)

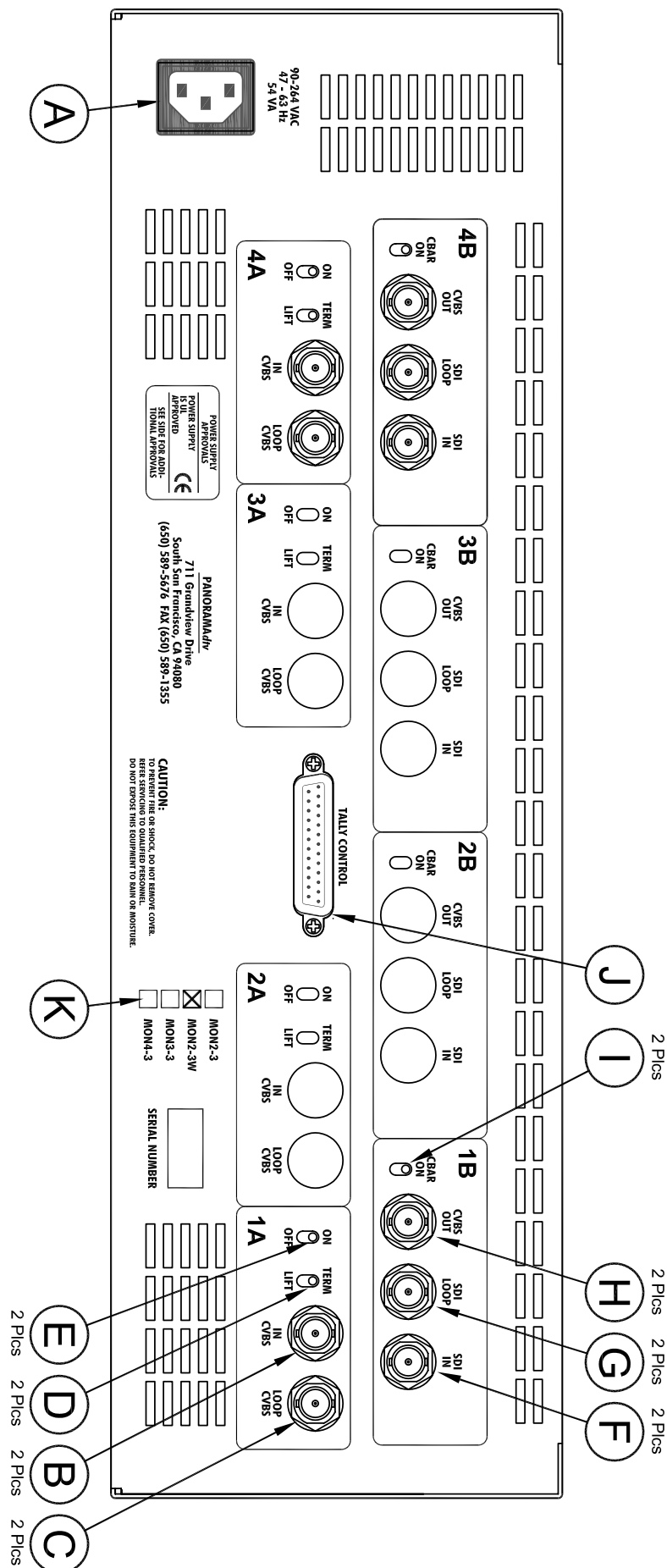


Figure 2-c: MON2-3/6.8 and MON2-3W Rear Panel Features

Rear Panel Features

(Continued)

H **CVBS Out - BNC Female Connector (MSDI-4 SDI Option)**

This connector supplies an analog CVBS encoded signal derived from the SDI input. Automatic standards sensing is accomplished by detecting 525 or 625 line signals. 525 line SDI input signals are encoded as an NTSC output. 625 line SDI input signals are encoded as a PAL output. (MSDI-4 SDI option is required.)

I **CBAR On - 2-Position Toggle Switch (MSDI-4 SDI Option)**

This switch controls a color bar generator associated with each monitor. To view the input signal, place this switch in the DOWN position. To activate the color bar generator, place this switch to the CBAR ON (UP) position. (MSDI-4 SDI option is required.)

J **Tally Control - DB-25 Female Connector**

This 25 pin sub-miniature female "D" connector allows you to tally individual monitor front panel Tally indicators. Full connection instructions are described on page 18

K **Model Identification Check Boxes**

The model identification of the particular MON series unit is indicated by a check mark next to the appropriate name in this silk-screened list. Note that "MON2-3" refers to the MON2-3/6.8 model.

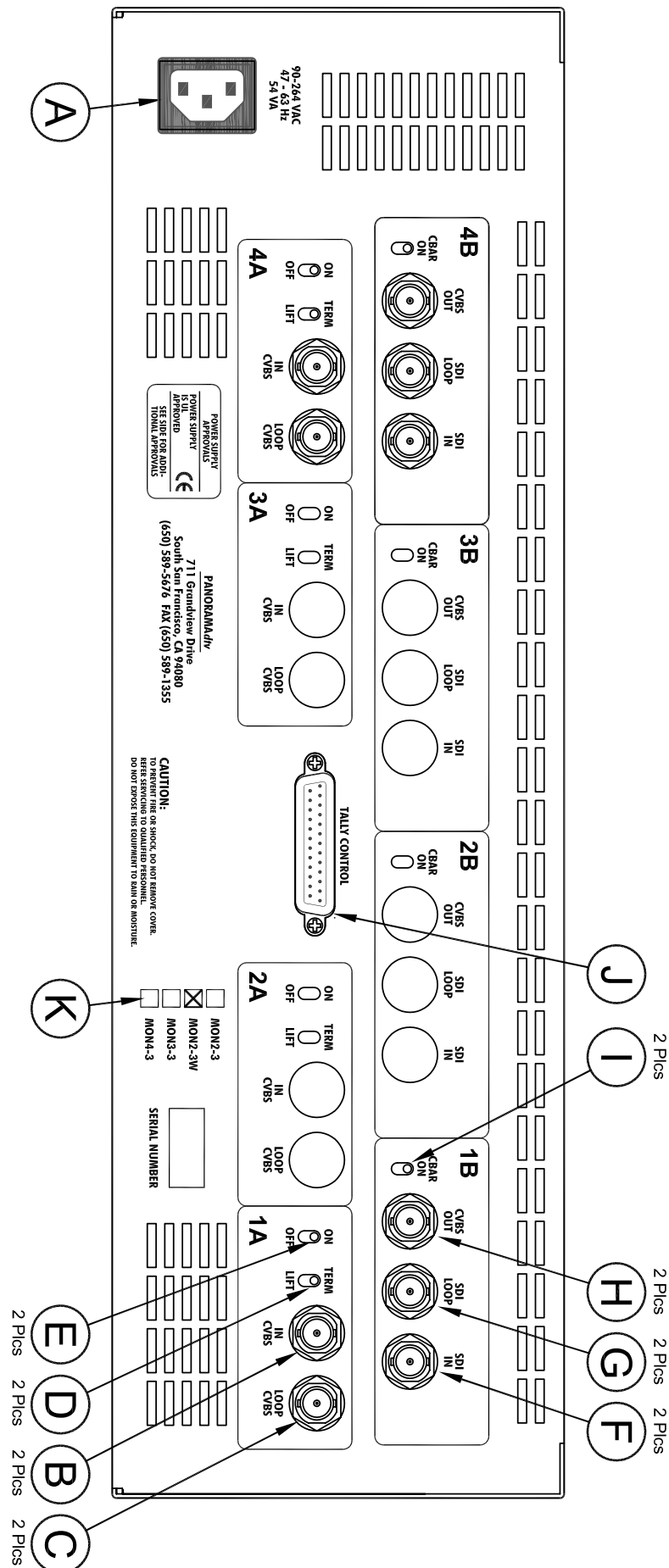


Figure 2-c: MON2-3/6.8 and MON2-3W Rear Panel Features

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Section 3

Technical Information

Tally Control

Wiring

SDI (MSDI-4) Input Module Option

Field Upgrading

CVBS (MAV-1) Input Module Option

Field Upgrading

NOTE:

PCB layout and schematic support documentation is available upon request.

Wohler Technologies, Inc.

31055 Huntwood Avenue

Hayward, CA 94544

Phone: (510) 870-0810 Fax: (510) 870-0811

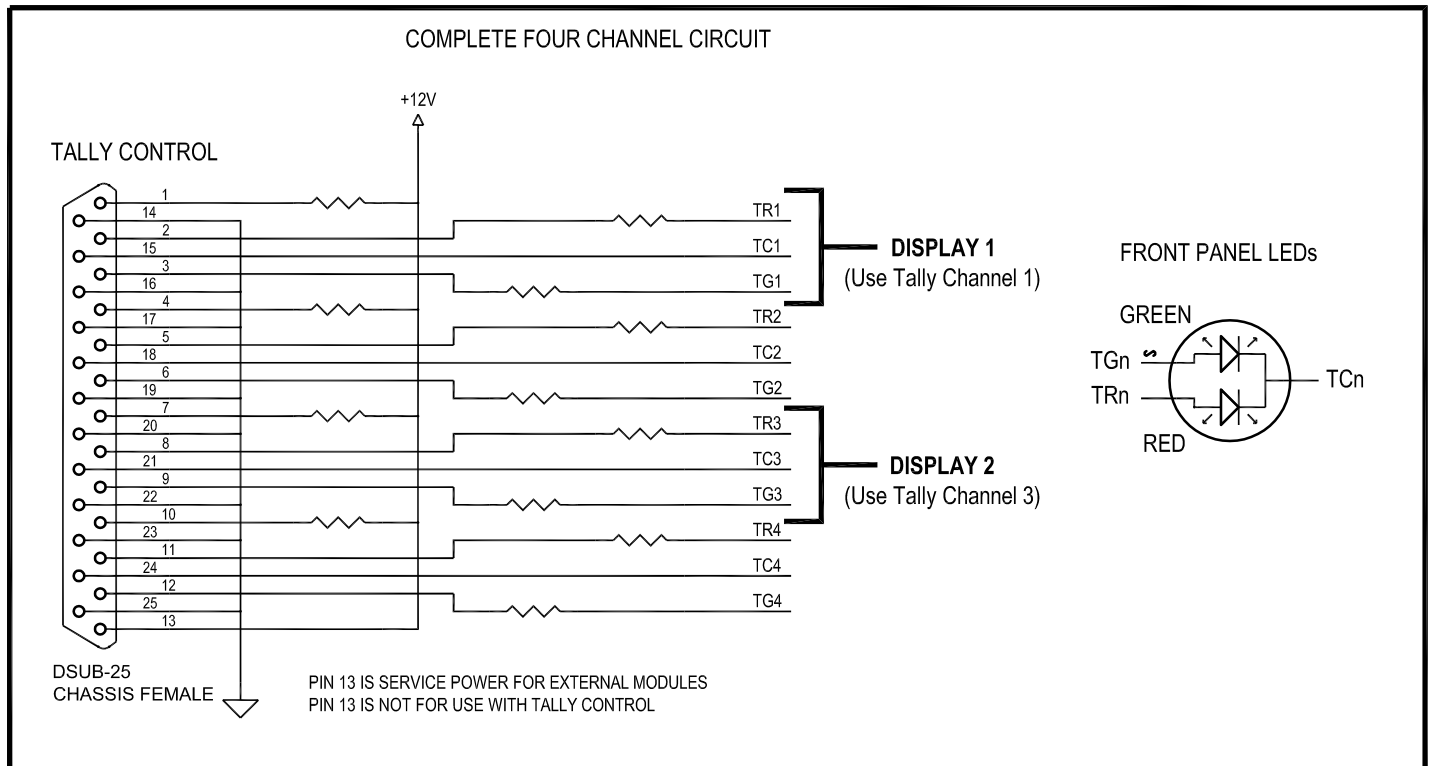
US Toll-Free: 1-888-596-4537

www.panoramadtv.com sales@panoramadtv.com

Tally Control Connections

A front panel dual-color **Tally Indication LED** is associated with each LCD display module. Interface is provided to the LEDs via the **Tally Control Connector** located on the chassis rear panel. The **Tally Indicator LEDs** are capable of displaying three colors; RED, GREEN, and AMBER. Illuminating the RED or GREEN LEDs separately will result in that tally color. Illuminate the RED and GREEN LEDs simultaneously to achieve a AMBER tally indication in the LED. Note that tally channel 1 (pins 2, 15, 3) is used to drive the **Tally Display 1** LEDs, while tally channel 3 (pins 8, 21, 9) is used to drive the **Tally Display 2** LEDs. See the diagram below for tally connector pinouts and LED wiring.

Three examples of tally connection configurations are shown on the facing page. You can operate the **Tally Indication LEDs** by numerous methods. The three tutorial examples showing **dry closure**, **positive true logic drive**, and **open collector** activation are illustrated to show basic operation. The LEDs interface with TTL levels. You can design illumination circuits as shown, by using TTL buffers, or by using transistors as switches.

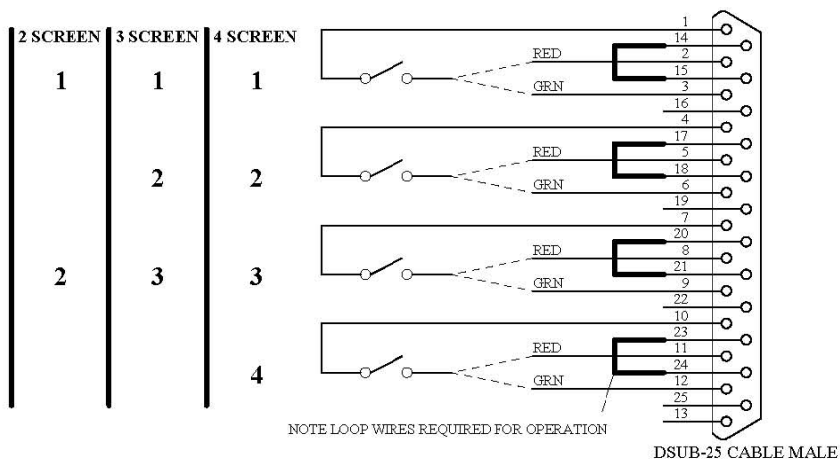


Tally Control Connections

DRY CLOSURE

USING INTERNAL POWER SOURCE

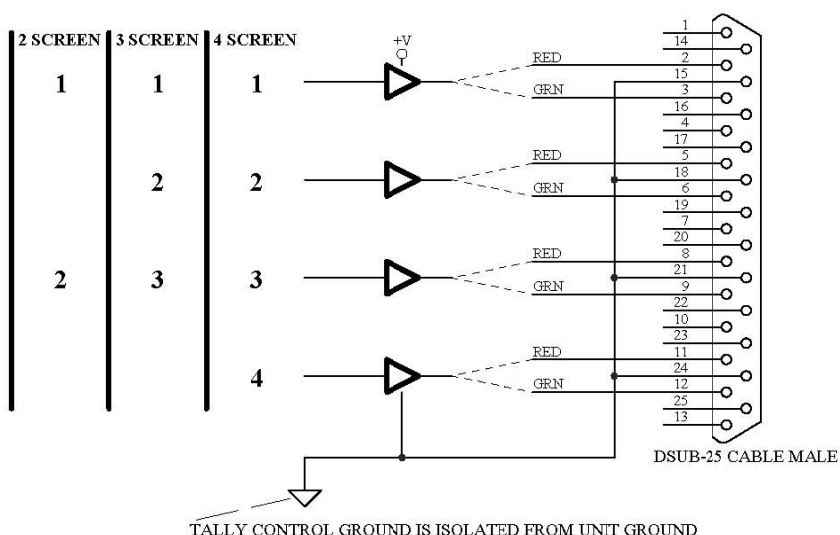
BOTH LEDS ON IS CK, BOTH = YELLOW



POSITIVE TRUE LOGIC DRIVE

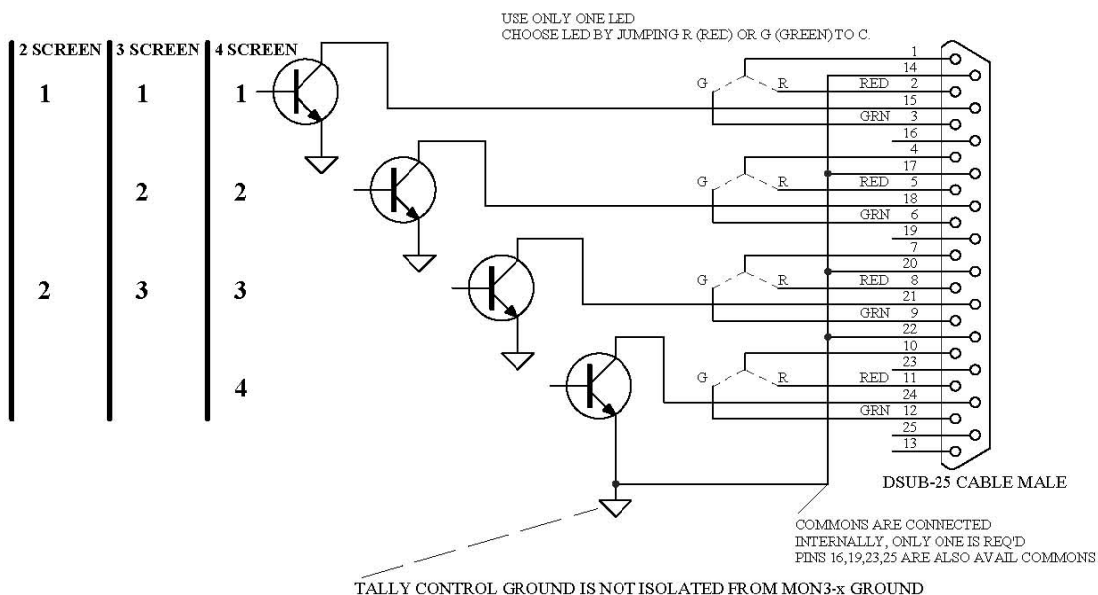
USING EXTERNAL POWER 5 - 12VDC

BOTH LEDS ON IS CK, BOTH = YELLOW



OPEN COLLECTOR

TRANSISTOR ON = LED ON
ONE LED ONLY



Tally Connection Configuration Examples

Note: In the examples above, note that only channels 1-3 are available for hookup in the MON3-3 units.

SDI (MSDI-4) Input Option

Field Upgrading

This section explains the procedures for field upgrading your unit with the MSDI-4 (SDI) option.

- 1) We advise you remove the MON2-3 from the mounting frame and work with the unit on a clean, well lighted work bench.
- 2) Ensure the MON2-3 is disconnected from the power mains.
- 3) Remove top cover. Retain screws for later reassembly.
- 4) Remove the blanking plugs from the BNC connector holes. (Rear panel sections 1B through 4B.)
- 5) Remove the flat ribbon cable from the rear I/O PC board. (Horizontal removal/insertion.)
- 6) Install the option kit-supplied flat ribbon connector into the connector previously vacated in Step 5.
- 7) Install the option kit-supplied power harness to the rear I/O PC board 4 pin header associated with the position where this particular MSDI-4 option will be installed. (J22, J23, J24, or J25.) **The RED wires are referenced to the + symbol silk-screened on the circuit board.**
- 8) Insert the flat ribbon into the rear (horizontal) flat ribbon connector on the MSDI-4 board.
- 9) Insert the flat ribbon cable to the front LCD into the inboard (vertical) flat ribbon connector on the MSDI-4 board.
- 10) Attach the MSDI-4 to the rear panel using the supplied nuts.
- 11) Attach the power harness to the 4 pin header on the MSDI-4. **The RED wires go towards the marking “+12V.”**
- 12) Double check all wiring and connections.
- 13) Connect an SDI signal to the SDI input and set the front panel Input (I/P) Selector Switch (Item 5 on page 10) to the UP (B) position. Connect mains power to the unit and confirm operation.
- 14) Remove Mains power from the unit and repeat steps 4 through 13 for each monitor section receiving the option installation. (We suggest each monitor section be individually installed and tested.)
- 15) Replace cover and return unit to service.

Note: Each channel can accept only one additional input option; either an SDI (MSDI-4) input module or an additional CVBS (MAV-1) input module.

CVBS (MAV-1) Input Option

Field Upgrading

This section explains the procedures for field upgrading your unit with additional composite video (CVBS) input module(s).

- 1) We advise you remove the MON2-3 from the mounting frame and work with the unit on a clean, well lighted work bench.
- 2) Ensure the MON2-3 is disconnected from the power mains.
- 3) Remove top cover. Retain screws for later reassembly.
- 4) Remove blanking plugs from slot where MAV-1 is to be installed. (Rear panel sections 2A and/or 3A)
- 5) Remove flat ribbon cable from rear I/O PC board. (Horizontal removal/insertion.).
- 6) Cut termination resistor from rear main board at the point labeled “B Input Cutout”. (Note: this is to allow HI-Z/75 ohm termination selection from the MAV-1 board).
- 7) Install the flat ribbon connector supplied with the interface into the connector the ribbon was disconnected from in step #4.
- 8) Insert the flat ribbon into the rear (horizontal) flat ribbon connector labeled “J3” on the MAV-1 board.
- 9) Insert the flat ribbon cable to the front LCD into the inboard (vertical) flat ribbon connector labeled “J4” on the MAV-1 board.
- 10) Attach the MAV-1 to the rear panel using the supplied BNC nuts.
- 11) Double check all wiring and connections.
- 12) Connect CVBS signal and confirm operation.
- 13) Replace cover and return unit to service.

Note: Each channel can accept only one additional input option; either an SDI (MSDI-4) input module or an additional CVBS (MAV-1) input module.



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31055 Huntwood Avenue

Hayward, CA 94544

Phone: (510) 870-0810 Fax: (510) 870-0811

US Toll-Free: 1-888-596-4537

www.panoramadt.com sales@panoramadt.com